checking with the nearest co-channel cells for potential interference on the reallocated channels.

<u>Claim 1</u>

The Examiner has maintained the rejection of independent claim 1 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,047,186 to Yu et al. (hereinafter, "Yu"), in view of U.S. Patent 5,809,423 to Benbeniste (hereinafter, "Benbeniste"). Yu discloses a method of mapping cell sector boundaries to real-world performance characteristics, grouping the real-world sectors into "regions" separated by weak connection zones, and then statically assigning channel groups to cell sectors within each region by optimizing the ratio of received signal strength to interference power within each sector. Benbeniste discloses an Adaptive-Dynamic Channel Assignment wherein frequency groups are assigned to cells according to measured or anticipated traffic loads (adaptive phase), and wherein one cell may borrow an unused channel from another cell as its load increases (dynamic phase). As Applicant explained extensively in the Response of March 22, 2001, the Examiner has failed to establish a *prima facie* case of obviousness.

The Examiner responded to Applicant's arguments regarding the teachings of Yu and Benbeniste by stating, "While Yu teaches more than this concept <u>the examiner only relies on that part of Yu's teaching</u>," and, "Once again, while Benbeniste teaches more than this concept <u>the examiner only relies on that part of [Benbeniste's] teaching</u>." Final Office Action of June 6, 2001, ¶ 16 (emphasis added). The <u>parts</u> of the respective references on which the Examiner relies were chosen by reference to the separate limitations of claim 1 – deconstructed from their context in Applicant's invention, and, as the Examiner admits, divorced from their context in the prior art references themselves. This is an improper obviousness analysis, as a matter of law.

"One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention." *In re Fine*, 837 F.2d 1071,1075 (Fed. Cir. 1988). The Examiner has taken each limitation of claim 1 and, using impermissible hindsight, picked and chosen among isolated disclosures in Yu and Benbeniste to reconstruct, and thence reject, the claim. The Federal Circuit has expressly condemned this practice:

> The invention must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time. . . . From its discussion of the prior art it appears to us that the court . . . treated each reference as teaching one or more of the specific components for use in the [inventor's] system, although the [inventor's] system did not then exist. Thus the court reconstructed the [inventor's] system, using the blueprint of the [inventor's] claims. As is well established, this is legal error.

Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1138-9 (Fed. Cir. 1985) (emphasis added). The *Interconnect* court went on to specifically condemn the practice of selectively extracting partial teachings from prior art references.

> 35 U.S.C. § 103 requires that obviousness be determined with respect to the invention as a whole . . . Not only must the claimed invention as a whole be evaluated, but so also must the references as a whole, so that their teachings are applied in the context of their significance to a technician at the time – a technician without our knowledge of the solution.

Id., at 1143 (emphasis added). The legal requirement that prior art references must be considered as a whole, and isolated disclosures not selectively extracted to create the applicant's invention, predates the Federal Circuit.

> References are evaluated by ascertaining the facts fairly disclosed therein as a whole. It is impermissible to first ascertain factually what appellants did and then view the prior art in such a manner as to select from the random facts of that art only those which may be modified and then utilized to reconstruct appellants' invention from such prior art.

Application of Shuman, 361 F.2d 1008, 1012 (C.C.P.A. 1966) (emphasis added).

Having selectively assembled partial disclosures from the prior art references, and combined them using impermissible hindsight to reconstruct Applicant's claim 1, the

Examiner stated, "One of ordinary skill in the art would recognize that Benbeniste's teaching enhances Yu's teaching with the combination yielding the benefit of efficient channels allocation with maximized traffic capacity." Far from a showing of a motivation to combine the references, this assertion is merely a restatement of one benefit of Applicant's invention, as stated in its Specification: "By dynamically reassigning channels between sectors, a gain in spectral efficiency is realized as compared to sectorized cells in the prior art cellular networks." Applicant's Specification, p. 2, ll. 16-18. The Examiner has shown neither a motivation to combine the references, nor a reasonable likelihood of success in such combination. Thus, the Examiner has failed to present a *prima facie* case of obviousness. *See* MPEP § 2143.

The Examiner's response to Applicant's argument that Yu teaches away from a combination with Benbeniste does not address the teaching of Yu at all. The Examiner stated, "the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference . . ." While Applicant does not dispute that test, it is completely inapposite to the argument that Yu teaches away from a combination with Benbeniste – not because the two may not be "bodily incorporated," but because by the very nature of its teaching, Yu destroys any suggestion of such combination. "There is no suggestion to combine, however, if a reference teaches away from its combination with another source." *Tec Air, Inc. v. Denso Mfg. Michigan Inc.*, 192 F.3d 1353, 1360 (Fed. Cir. 1999). Again, the prior art references must be considered as a whole.

> It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one skilled in the art.

Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve, Inc., 796 F.2d 443, 448 (Fed. Cir. 1986). As Applicant explained in its prior Response:

> Benbeniste teaches channel borrowing among cells within a
> network - not sectors within a cell - and it teaches this only in the
> context of an adaptive cell channel allocation scheme. . . . Adaptive
> channel allocation is antithetical to the very inventive concept of Yu.
> Yu teaches constructing cell sector boundaries that accurately
> reflect real-world performance characteristics, and then carefully
> allocating specific channel groups to each sector according to a
> complex, recursive algorithm so as to optimize the
> signal/interference performance in each region. Yu inherently
> teaches away from the adaptive (or, for that matter, dynamic)
> allocation of channels; Yu's invention is the computationally
> intensive crafting of a fixed channel allocation pattern that is tailored
> to the real-world performance metrics of each specific region.

Applicant's Response of March 22, 2001, pp. 3-4 (emphasis in original). The overall

teaching of Yu – taken as a whole, as it must be – teaches away from a combination

with Benbeniste, which destroys the legally necessary suggestion for the combination of

the two references. For the same reasons, Yu teaches away from Applicant's invention

of dynamic allocation of channels among sectors of a cell.

> A reference may be said to teach away when a person of ordinary
> skill, upon reading the reference, would be discouraged from
> following the path set out in the reference, or would be led in a
> direction divergent from the path that was taken by the applicant ...
> [or] if it suggests that the line of development flowing from the
> reference's disclosure is unlikely to be productive of the result
> sought by the applicant

In re Gurley, 27 F.3d 551, 553, 31 USPQ2d 1130, 1131 (Fed.Cir.1994). All three

formulations of the "teaching away" definition are relevant and applicable to the

purported teachings of Yu as regards Applicant's invention. The path laid out in Yu is

towards the careful fixed allocation of channels to cells and sectors – and thus it

inherently leads away from any dynamic reallocation of channels among cell sectors

Finally, in disregarding Applicant's argument that the proposed combination of Yu

and Benbeniste – even if proper – fails to render Applicant's invention obvious, the

Examiner stated, "The Examiner understands Benbeniste to teach the concept of

borrowing channels from one fixed region to be used in another." (emphasis added).

The Examiner understands something that Benbeniste does not disclose. The term

"region" does not appear in Benbeniste. Benbeniste teaches an Adaptive-Dynamic Channel Assignment wherein channels are adaptively assigned to <u>cells</u> based on measured or anticipated traffic load, and then may be dynamically re-allocated among <u>cells</u> based on actual load. Benbeniste does not disclose, claim, teach, or suggest the allocation (fixed or adaptive) or dynamic re-allocation of channels among <u>sectors</u> of a cell. Recognizing this, the Examiner asserted that "while Benbeniste <u>may or may not teach the limitation</u> it is at least <u>suggested</u> . . ." This conclusory statement is legally insufficient to support a *prima facie* case of obviousness.

"[T]he examiner may provide an explanation <u>based on logic and sound scientific reasoning</u> that will support a holding of obviousness." *Ex parte Levengood*, 28 USPQ2d 1300, 1301 (Bd. Pat. App. & Inter. 1993) (emphasis added).

> To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a <u>convincing line of reasoning</u> as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.

Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985) (emphasis added), *See also*, MPEP § 2142.

The Examiner has provided no reasoning at all – much less a convincing line of reasoning based on logic and sound scientific reasoning – why the disclosure of an adaptive/dynamic allocation of frequencies among <u>cells</u> in a wireless communications network would lead one of ordinary skill in the art to Applicant's invention of dynamic re-allocation of channels among <u>sectors</u> of a cell. The Examiner offered merely the bald and unsubstantiated assertion that "one of ordinary skill in the art would either recognize the <u>broader teaching</u> (that utilized relied upon [sic] by the examiner) or understand that [it] can be analogously utilized in the sector/cell relationship." (emphasis added). Yet the Examiner's only articulation of a "broader teaching" of Benbeniste is the undefined

"borrowing channels from a fixed region." The Examiner has offered no showing of equivalence or even parallel between <u>cells</u> in a network and <u>sectors</u> of a cell – the mechanics of allocating channels in the two cases, the load monitoring requirements or processes in the two cases, the computational and/or switching equipment relevant to the two environments, the costs, technology, infrastructure, support, maintenance, or any of myriad other factors and considerations that distinguish the two to one of ordinary skill in the art.

Even assuming *arguendo* that the combination of Yu and Benbeniste is proper, the Examiner has not shown that all elements of claim 1 are rendered obvious thereby. The Examiner asserted that Benbeniste <u>suggests</u> – not discloses – elements of Applicant's invention, but has offered <u>no convincing line of reasoning</u> as to why one of ordinary skill in the art would have so read Benbeniste. In short, the Examiner has failed to make out a *prima facie* case of obviousness.

Claim 6

The improper combination of Yu and Benbeniste is not cured by the further combination with U.S. Patent 6,119,011 to Borst *et al.* Independent claim 6 is thus also patentably nonobvious over the cited art.

Claims 21 and 27

The Examiner maintained the rejection of independent claims 21 and 27 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,161,024 to Komara (hereinafter, "Komara") in view of U.S. Patent 5,649,293 to Reed (hereinafter, "Reed"), and U.S. Patent 5,586,170 to Lea (hereinafter, "Lea"). Claim 21 is reproduced below for the Examiner's convenience:

> 21. A method for allocating channels in a sectored cell of a cellular communication system having a plurality of cells comprising:
>
> a. subdividing the channels allocated to the cell into frequency subgroups;

b.   assigning the frequency subgroups to respective sectors in the cell;

c.   providing a single transceiver array having a plurality of transceivers corresponding to the channels allocated to the cell;

d.   connecting the transceivers corresponding to each frequency subgroup to an antenna in the sector of the cell to which the subgroup has been assigned;

e.   allocating channels in each sector to users in that sector;

f.   determining the loading of each sector of the cell;

g.   when the loading in a first sector reaches a predetermined threshold, reassigning an unused channel from a second sector to the first sector;

h.   disconnecting the transceiver corresponding to the reassigned channel from the second sector and connecting it to said first sector.

The Examiner cited Reed as teaching, *inter alia*, claim element g: "when the loading in a first sector reaches a predetermined threshold, reassigning an unused channel from a second sector to the first sector." In the present invention, this increases the instantaneous capacity of the heavily loaded first sector, allowing additional users in the first sector to be serviced by the first sector antennae. Reed teaches the opposite: assigning a used channel (and its user) from a heavily loaded first sector to a less loaded second sector. Reed selects a user in the heavily loaded sector (preferably one physically near the base station) and reassigns him to an adjacent, less heavily loaded sector. In this reassignment, the user may be switched to a different frequency. Reed, col. 4, ll. 44-54. Reed thus teaches a form of hand-off between sectors of a cell, precipitated by the loading in the first cell. In effect, Reed teaches reducing the load of a cell to bring it under a loading threshold. In stark contrast, claim 21 recites no handoff or reassignment of users between sectors, and in fact the plain language of claim 21 explicitly requires that the channel reassignment be performed on an unused channel (see claim element g.). Additionally, the present invention expands the capacity of a loaded cell beyond its current loading threshold, by adding unused channels. As it
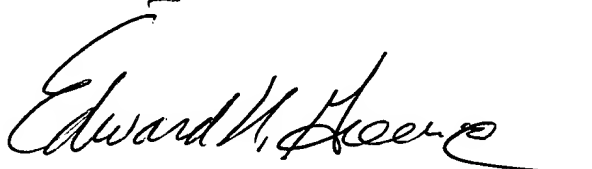
teaches an approach to alleviating the heavy loading of a sector that is <u>diametrically</u>

<u>opposed</u> to that of the present invention, Reed <u>teaches away from</u> the present invention,

and cannot possibly render it obvious.

For the same reasons cited above, the Examiner's rejection of independent claim

27 under 35 U.S.C. § 103 in view of Komara and Reed is also improper.

All pending claims in the instant application are patentably nonobvious over the

prior art, and are thus in form for allowance. Reconsideration of the application in light of

these remarks is hereby respectfully requested.

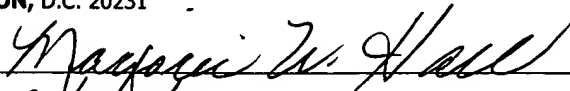Respectfully submitted,

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